

REMARKS/ARGUMENTS

Various claims are being amended as shown above. The claim amendments clarify the claim language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the cited art.

Chan discloses a computer memory controller 10, where a dispatch logic 121 dispatches an incoming memory access command from a unified command queue 111. The dispatch logic 121 dispatches the incoming memory access command to one of the command queues 101-104. A selection logic 131 selects arbitrarily one of the command queues 101-104 so that a stored command in the selected command queue can access the DRAM. Therefore, the memory controller 10 of Chan uses the selection logic 131 and command queues 101-104, in order to determine the order of access (priority) by the access commands into the DRAM. Chan does not disclose does not disclose the step of sending a unique identifier tag and strobe signal to the sender of the access commands, so that the sender is informed as to the order in which the access commands are being serviced.

Claim 1 is being amended to recite the steps of
"associating, by a buffer manager, a unique identifier tag with each request from the one or more requestors;".....
"sending, by the arbiter to the requestor, a unique identifier tag associated with the selected request and a strobe signal indicating that the selected request is being serviced by a memory controller, so that the requestor is informed as to the order in which the request from the

requestor is being serviced", which are features that are neither disclosed nor suggested in Chan.

Claim 11 is being amended to recite, "a buffer manager for associating a unique identifier tag with each request from the one or more requestors; an arbiter for receiving the plurality of request and for arbitrating between the plurality of requests in such a way so that the plurality of requests from each requestor may be re-ordered in non-FIFO order, and for selecting a next request to access the shared resources based on the re-ordering of requests; the arbiter also configured to send to the requestor a unique identifier tag associated with the selected request and a strobe signal indicating that the selected request is being serviced by a memory controller, so that the requestor is informed as to the order in which the request from the requestor is being serviced", which are features that are neither disclosed nor suggested in Chan.

Claim 21 is being amended to recite, "means for associating, by a buffer manager, a unique identifier tag with each request from the one or more requestors; means for sending, by the arbiter to the requestor, a unique identifier tag associated with the selected request and a strobe signal indicating that the selected request is being serviced by a memory controller, so that the requestor is informed as to the order in which the request from the requestor is being serviced", which are features that are neither disclosed nor suggested in Chan.

Accordingly, each of the claims 1, 11, and 21 is patentable over Chan.

Applicant further submits that it would not have been obvious to modify or combine Chan with Hagersten, because Chan teaches away from associating a unique tag with each

request. Chan discloses the use of queues 101-104 to store received commands, and a selection logic 131 selects an active queue to permit a stored command in the selected queue to access a DRAM. Therefore, in Chan, there is no need to use tags associated with commands for purposes of prioritizing the commands. Therefore, Chan teaches away from associating tags with requests, and the Chan-Hagersten combination is improper.

Furthermore, it would not have been obvious to modify Chan with Hagersten because the proposed combination would require a substantial reconstruction and redesign of the elements disclosed in the primary reference. (See MPEP 2143.01). For example, there is no suggestion in the references on how to modify the elements in Chan so that the memory controller 10 can function with the elements in Hagersten. Furthermore, Chan and Hagersten do not suggest or disclose any interface circuitry, modules, systems, methods, and/or techniques that permit the elements disclosed in Chan to function with the elements disclosed in Hagersten. Therefore, the modification of Chan, as suggested in the Office Action, is improper.

Hagersten discloses in Figure 4 that when a request agent 100 receives a coherency reply from a slave agent 104, the request agent 100 sends a completion 122 to a home agent 102 (see Hagersten, column 16, lines 28-32). Furthermore, the request agent 100 sends the coherency request (access right request) 110 to the home agent 102 (see Hagersten, column 15, lines 38-42). The home agent 102 does not send the completion 122 to the request agent 100 which sent the access right request 110. Therefore, Hagersten discloses the request agent (requestor) 100 as sending both an access right request 110 and completion 122

to the home agent (recipient) 102, and the recipient does not send any acknowledgement signals to the requestor.

In contrast, claim 1 substantially recites a requestor that sends a request to an arbiter; and the arbiter, which sends to the requestor, a unique identifier tag associated with the selected request and a strobe signal indicating that the selected request is being serviced by a memory controller, so that the requestor is informed as to the order in which the request from the requestor is being serviced. These recited features in claim 1 are neither disclosed nor suggested by Chan and Hagersten, considered singly or in combination.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Accordingly, each of the claims 1, 11, and 21 recites features that are not disclosed nor suggested by the Chan-Hagersten combination, and therefore, each of the claims 1, 11, and 21 is patentable over the Chan-Hagersten combination.

For the above reasons, Applicant respectfully requests allowance of all pending claims.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is respectfully


requested to specifically point out where such teachings may be found.

CONTACT INFORMATION

If the Examiner has any questions or needs any additional information, the Examiner is invited to telephone the undersigned attorney at (805) 681-5078.


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